

ISO 9001 Certified Quality System ITAR/DDTC Registered Cage Code: 3G1X9 NAICS: 332813

## Alexandria

Over 60 Years of Quality Metal Finishing 1962 - 2025

SPEC

ASTM-A-967

Nitric 1

Nitric 2

Nitric 3

TEMPERATURE/

120°-130°F

70°-90°F

120°-140°F

20 min. 120°-130°F COMMENTS

20 - 25

20 - 45

20 - 25

45 - 55

Dichromate (Weight %)

 $2.5 \pm 0.5$ 

**PROCESS** 

**PASSIVATE** 

Alternate spec to supersede QQ-P-35. In addition to passivate

Finishers currently offers Nitric 1 and Nitric 2 passivation. For any other types, please contact

using Nitric acid (and Sodium Dichromate). Alexandria Metal

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PROCESS	SPEC	THICKNESS	COMMENTS	JANI	JARY						FEBR	UARY	,					MAR	CH					
	SPEC	I HICKINESS	COMMENTS	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON	N TUE	WED	THUR	FRI	
ANODIZE SULFURIC	MIL-PRF-8625 MIL-A-8625					_	1	2	3	4				_		_	1				_		_	
Color will vary with alloy. Aluminum with low alloying elements will show practically	Type II	0.000070" - 0.0010"	All aluminum alloys, but do not use where solution will entrap.	5 12	13	14	8 15	9	10 17	11	9	10	11	5 12	13	14	15	9	10	11	5 12	13	7 14	
no color change. Best coating on aluminum for dyeing. Can be dyed practically any color or shade	Type IIB	Light Coating	Thin coating use as a non-chromate alternative for Type I, chromic	19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	
(Black, blue, red, gold, orange, green, etc.).	Class 1		acid anodize.  Non-dyed	26	27	28	29	30	31		23	24	25	26	27	28		23	24	25	26	27	28	
Salt spray requirement is 336 hours (5% NaCl solution) per method B-117 of ASTM.	Class 2		Dyed															30	31					
			For Class 1, Alexandria's standard practice for sealing is	APRI	Ī						MAY							JUNE	<b>F</b>					
			"Clear, hot DI water".  Dichromate seal may be specified (resulting color will be	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON	N TUE	WED	THUR	FRI	Γ
			pale yellow-green).  FED-STD-No. 595 may be used as a guide for specifying color			1	2	3	4	5					1	2	3	1	2	3	4	5	6	
ANODIZE TO			(approximate comparison only).	6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	
AEROSPACE MATERIAL SPECIFICATIONS (AMS)				13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	
AMS anodizing specifications are similar to Mil-A-8625. The major	AMS-2469	Hardcoat	Salt Spray test is requirement	20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	
differences are in the testing requirements. All AMS specs do not allow production parts to be		0.002" ± 0.0005"	(when sealed) for 336 hours	27	28	29	30				25	26	27	28	29	30	31	29	30		<u> </u>			
run until preproduction samples have been approved or waived in writing by purchaser. Coating	AMS-2471	Sulfuric Acid Process - no	336 hours salt spray test required and controlled on 6061																					
weight test may be required on a lot basis rather than a monthly basis. Additional and/or specific		dye coating	- T3 aluminum. (Dichromate Sealed)	JULY	,	,	1				AUGI	JST						SEPT	ГЕМВ	ER				
tests may be required.	AMS-2472	Sulfuric Acid	336 hours salt spray test	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON		WED	THUR	FRI	
*** AMS 2471/2472/2482 are not currently included in our Nadcap scope.		dye Black	required and controlled on 6061 - T3 aluminum.			1	2	3	4	5						1	2		1	2	3	4	5	L
	AMS-2482	Hardcoat 0.002" ±	336 hours salt spray test required. Coefficient of friction	6	7	8	9	10	11	12	3	4	5	6	7	8	9	7	8	9	10	11	12	
		0.0005" with Teflon	test required.	13	14	15	16	17	18	19	10	11	12	13	14	15	16	14	15	16	17	18	19	_
CHEMICAL	MIL-DTL-5541			20	21	22	23	24	25	26	17	18	19	20	21	22	23	21	22	23	24	25	26	_
FILM				27	28	29	30	31			24	25	26	27	28	29	30	28	29	30				
Coatings for aluminum. Color can vary from colorless to golden - iridescent -brown. Materials should conform to	Class 1 A	No Dimensional Change	Class 1A is used as a corrosion preventative film (if unpainted) or to improve adhesion of paint finish systems (if painted).								31													
MIL-DTL-81706. Coatings shall be continuous, free from powdery areas, breaks,	Class 3		Class 3 is used as a corrosion	OCTO	BER						NOVE	MBER	}					DECE	EMBE	R				_
scratches, etc.  Type I Yellow or Clear Chromate. Type II Clear (RoHS compliant			preventative film for electrical and electronic applications, where low resistance contacts are required. Low electrical	SUN	MON	TUE	WED	THUR 2	FRI 3	SAT 4	SUN	MON	TUE	WED	THUR	FRI	SAT 1	SUN	MON 1	N TUE	WED 3	THUR 4	FRI 5	
Hex-free, Cl. 1A or 3)			resistance test not required unless specified.	5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	
				12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	
CHEMICAL FINISH (Black)	MIL-F-495			19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	
A uniform black corrosion retardant for copper. Coating has no abrasion resistance.		No Dimensional Change	Used as a base for lacquer, light oil, or wax. For decorative, optical, and corrosion retardant application.	26	27	28	29	30	31		30	24	25	26	27	28	29	28	29	30	31			
					no		Zİr	ng,		Elec	str		ola	tir			he	mi				nis	hii	
1						CESS		SPEC		THICKNESS		OMMEN				PROCES		SPEC		THICKNESS			MENTS	
			*		FCT		20								ЦЛОГ	7 8 8 10	חודב		+		+			

A uniform black corrosion retardant for copper. Coating has no abrasion resistance.		No Dimensional Change	Used as a base for lacquer, light oil, or wax. For decorative, optical, and corrosion retardant application.
COPPER	MIL-C-14550		
Copper in color and matte to a	1	Unless otherwise	

				ELECTROPOLISHING	NO MIL SPEC		
CODDED	MIL-C-14550		A CONTRACTOR OF THE CONTRACTOR	Process electrolytically removes or diminishes scratches, burrs and unwanted sharp edges from most 300 series stainless steel		Typical material removal:	Typical dimensional reduction of 0.0002" per surface.
COPPER Copper in color and matte to a	IVIIL-U-1455U	Unless otherwise		alloys. Finishes from satin to mirror-bright are produced by controlling time, temperature, or both.		0.0002"	Process is not recommended for close tolerance surfaces.
very shiny finish. Good corrosion resistance when used as undercoat. A number of copper processes are available, each	Class O	specified: 0.001 - 0.005"	For heat treatment stop-off	GOLD	MIL-G-45204		
design for a specific purpose:  Brightness: To eliminate the need for buffing	Class 1	0.001" min.	For carburizing and decarburizing shield, also plated through printed circuit board	Yellow to orange color depending on proprietary process used. Will range from matte to bright	Туре І	Unless otherwise specified:	99.7% gold min.
High speed: For electroforming	Class 2	0.0005" min.	As an undercoat for nickel and	finish depending on basis metal. Good corrosion resistance, and has high tarnish resistance.	Type II		99.0% gold min.
Fine grain: To prevent	Class 3	0.0002" min	other platings.	Provides a low contact resistance, and is a good	Type III		99.9% gold min.
casehardening	Class 3	0.0002 min 0.0001" min.	to prevent basis metal migration into tin (prevent	conductor. Has excellent solderability.			Grade A 90 Knoop max.
Please note: This specification is provided for reference only, as it has been superseded by AMS-2418 (See below).	Olado 4	0.0001	poisoning solderability).	Unless otherwise specified, an intermediate nickel plate is	Class 00	0.00002" min.	Grade B 91-129 Knoop
				required on copper base alloys or copper plated surfaces prior to the gold plating.	Class 0		Grade C 130 - 200 Knoop
COPPER	AMS-2418			Please note: This specification is	Class 1	0.00005" min.	Grade D above 200 Knoop
Alternate spec. to supersede		Unless		provided for reference only as it has been superseded	Class 2	0.00010" min.	Type I (Grades A, B or C)
MIL-C-14550		otherwise specified:	Copper flash about 0.0001"	(See below).	Class 3	0.00020" min.	Type II (Grade B, C or D)
			Preproduction approval required or must be waived in writing.		Class 4	0.00030" min.	Type III (Grade A only)
		0.0005" - 0.0007"	S. Mass so warred in writing.		Class 5	0.00050" min.	Alexandria Metal Finishers performs Grade A & Grade C
ELECTROLESS					Class 6	0.00150" min.	only. Other grades quoted upon request.
NICKEL	AMS-C-26074 (MIL-C-26074)			GOLD	ASTM-B-488		
Similar to stainless steel in		Unless otherwise	Customer to specify the Rc	Alternate gold specification to supersede MIL-G-45204.		Unless otherwise specified:	
color. Plates uniformly in		specified:	Customer to specify the Rc hardness of steel and if it is greater than RC4O, whether the steel is carburized.	Very compatible to MIL-G-45204 except that adhesion bake test (If chosen) will be @ 570°F -	Туре І	Purity	99.7% gold min.
build up on edges). Corrosion resistance is good for coating over 0.001" thickness. Electroless nickel is used	Class 1		As Coated	660°F for 30 minutes. A bend test may also be substituted.	Type II		99.0% gold min.
extensively in salvage of mismachined parts. Also, for	Class 2		Steel and other base metals	(Note: Sampling for destructive	Type III		99.9% gold min.
inside dimensions and irregular shapes (where assembly			heat treatable to improve hardness.	testing will be higher than that of MII-G-45204).	Code A	Hardness	90 HK(25gr) max.
tolerances need uniformity provided by electroless process). This spec does not specify the	Class 3		Aluminum alloy, not heat treatable, processed to improve		Code B		91-129 HK (25gr) N/A @AMF
phosphorous content in the EN deposit provided it passes 100 hours salt test at 1.0 mil for AL	Class 4		adhesion of nickel deposit.  Aluminum alloy, heat treatable,		Code C		130 - 200 HK (25gr)
and 1.5 mil for steel.	UIB35 4		processed to improve adhesion of nickel deposit.		Code D		200 min HK (25gr) N/A @AMF
Microsectioning to determine coating thickness may be required under this spec when thickness is over 1 mil and	Grade A	0.0010" min.			Class	Thickness	Thickness shall be specified as minimum in micrometers such as 0.25, 0.50, 0.75, 1.00
non-destructive test method is not available.	Grade B Grade C	0.0005" min. 0.0015" min.					Alexandria Metal Finishers performs Code A & Code C only. Other
			Unless otherwise specified:	GOLD	MIL-DTL-45204		codes quoted upon request.
	For plating on tit		Aluminum alloys will be Grade A. Cu, Ni, Co alloys will be Grade B. Ferrous alloys will be Grade C.				+
	customer to sup coupons for adh		i errous alloys will be Grade C.	Alternate spec to supersede MIL-G-45204. Yellow gold to orange color depending on	Tuna I	Unless otherwise specified:	99 7% gold min
ELECTROLESS				proprietary process used. Will range from matte to bright finish	Type I		99.7% gold min.
NICKEL	AMS-2404			depending on the basis metal.  Good corrosion resistance and	Type II		99.0% gold min.
				has high tarnish resistance. Provides a low contact resistance and is a good	Type III		99.9% gold min.
No definition of phosphorous content in the EN deposit. No		As specified on Drawings	Note: Unless a specific class is specified, Class 1 shall be supplied.	conductor. Has excellent solderability. Unless otherwise	Class 00	0.00002" min.	Grade A 90 Knoop max.
"Grade" designation. Plating on special metals such as titanium, etc. requires	Class 1		Except for hydrogen embrittlement	specified, an intermediate nickel plate is required on copper base	Class O	0.00003" min.	Grade B 91-129 Knoop
as titanium, etc. requires customer to supply test coupons of identical material to be used			relief,no postplating thermal treatment.	alloys or copper plated surfaces prior to the gold plating.	Class 1	0.00005" min.	Grade C 130 - 200 Knoop
for plating adhesion tests.	Class 2	(Not for Aluminum)	Thermal treatment at 450°F (232°C) or above to harden the deposit,		Class 2	0.00010" min.	Grade D above 200 Knoop  Customer is required to elect
Specs require the EN to pass 48			hardness to 800 HK min.		Class 3	0.00020" min.	verification Level from I to VII per MIL-STD-1916. Where not specified.
hours salt spray test for steel (at 1.0 mil min.)	Class 3		Thermal treatment at 375°F (191°C) to improve adhesion for non		Class 4	0.00030" min.	Alexandria will elect to sample per MIL-G-45204.
Specifications require no production parts			heat-treatable aluminum and beryllium alloys.		Class 5	0.00050" min.	Alternately customer may elect to
unless preproduction samples have been approved or waived in writing by purchaser. EN deposit may be hardened by heating at	Class 4		Thermal treatment at 250°F (121°C)		Class 6	0.00150" min.	specify a different inspection plan (such as per MIL-G-45204).
750° F for steel, but only when specified.			to improve adhesion for heat-treatable aluminum alloys.				Alexandria Metal Finishers performs Grade A & Grade C only. Other grades quoted upon request.
HE INFORMATION PROVIDED ON THE				NDED TO BE COMPLETE, AS SPECIFICATION	IS ARE CONSTANTL	Y CHANGING. PLEA	ASE REFER TO THE CURRENT REVISION

PROCESS	SPEC	THICKNESS	COMMENTS	PROCESS	SPEC	THICKNESS	COMMENTS
ELECTROLESS NICKEL	ASTM-B-733			HARD ANODIZE (HARDCOAT)	MIL-PRF-8625 MIL-A-8625		
3 - 13% phosphorous EN deposit. Alexandria Metal Finishers offers electroless nickel plating with a phosphorous range of 6-12%. More stringent, specific and detailed than MIL-C-26074, AMS-2404 & AMS-2405. Ordering data must be complete. Plating on special metals such as titanium, etc. requires customer to supply test coupons of identical material to be used for plating adhesion tests.		Range from 0.00004" - 0.003"	ASTM specification requires the purchaser to well define the "type", "class", "service condition", "composition", "test method", etc. on ordering documents. Porosity testing is offered when requested on purchasing documents. The customer must specify testing method and requirements.	Color will vary from light tan to black depending on alloy and thickness. Can be dyed in darker colors depending on thickness. Coating PENETRATES base metal as much as builds up on the surface. The term THICKNESS includes both the build-up and penetration. Provides very hard ceramic type coating. Abrasion resistance will vary with alloy and thickness of coating. Good dielectric	Type III	As specified on drawing. If not specified nominal thickness shall be 0.002" - ±0.0004"	Most aluminum alloys depending on process used. Where maximum serviceability or special properties are required, consult metal finisher for best alloy choice. Thick coatings (over .004") will tend to break down sharp edges. Typical applications: hydraulic cylinders, wear surfaces, actuating cams, etc. Can be used as an electrical insulation coating.
ELECTROPOLISHING	NO MIL SPEC			properties. Corrosion resistance is good, but recommend seal		greater than 5% or Silicon	"Flash" hard anodize may be used instead of conventional anodize for corrosion resistance and may be
Process electrolytically removes or diminishes scratches, burrs and unwanted sharp edges from most 300 series stainless steel alloys. Finishes from satin to mirror-bright are produced by controlling time, temperature, or both.		Typical material removal: 0.0002"	Typical dimensional reduction of 0.0002" per surface.  Process is not recommended for close tolerance surfaces.	hard anodize in 5% dichromate solution where increased corrosion resistance is required. Where extreme abrasion resistance is required, do not seal as some softening occurs.  Sampling will be per Mil-Std-105E unless otherwise specified	Class 1	greater than 8%, shall not be processed. Customer to specify type of alloy or alloy composition	more economical in conjunction with other hard anodized areas. Hardcoat anodize is available with teflon impregnation also. If Class 1 is specified, hard anodize shall not be dyed. Non-dyed & un-sealed unless specified
GOLD	MIL-G-45204			- outerwise specified	Class 2		Dyed
Yellow to orange color depending on proprietary process used. Will range from matte to bright finish depending on basis metal. Good corrosion resistance, and has high tarnish resistance. Provides a low contact resistance, and is a good conductor. Has excellent solderability.	Type I Type II Type III	Unless otherwise specified:	99.7% gold min. 99.0% gold min. 99.9% gold min. Grade A 90 Knoop max.	There is a nickel finish for almost any need. Nickel can be deposited soft or hard - dull or bright, depending on process used and conditions employed in plating. Thus, hardness can range from 150 - 500 Vickers.	AMS-QQ-N-290		NOTE: All steel parts having a tensile strength of 220,000 or greater shall not be nickel plated without specific approval of procuring agency.
Unless otherwise specified, an intermediate nickel plate is	Class 00	0.00002" min.	Grade B 91-129 Knoop	Can be similar to stainless steel in color, or can be a dull grey or light grey (almost white) color.	Class 1		For corrosion protection.
required on copper base alloys or copper plated surfaces prior	Class O	0.00003" min.	Grade C 130 - 200 Knoop	Corrosion resistance is a function of thickness. Has a low	Grade A Grade B	0.0016" min. 0.0012" min.	With typical 0.0002" copper undercoating prior to the nickel
to the gold plating.  Please note: This specification is	Class 1	0.00005" min.	Grade D above 200 Knoop	coefficient of thermal expansion. Is magnetic. All steel parts having a hardness of Rc- 40 or	Grade C Grade D	0.0010" min. 0.0008" min.	plate. For Class 1, if thickness is not specified, it shall be Grade C
provided for reference only as it has been superseded	Class 2	0.00010" min.	Type I (Grades A, B or C)	greater require a post bake at 375°+ 25°F for 3 hours minimum.	Grade E Grade F	0.0006" min. 0.0004" min.	for steel & zinc base metals, and Grade D for Copper base metals.
(See below).	Class 3	0.00020" min.	Type II (Grade B, C or D)		Grade G Class 2	0.0002" min. 0.002" max. (unless otherwise	For engineering applications.
	Class 4	0.00030" min.	Type III (Grade A only)	-		speicified)	
	Class 5 Class 6	0.00050" min. 0.00150" min.	Alexandria Metal Finishers performs Grade A & Grade C only. Other grades quoted upon request.	NICKEL	AMS-2403	As specified on drawing.	Alexandria Metal Finishers applies this specification for undercoating only generally under 0.0005"
GOLD	ASTM-B-488			PASSIVATE	AMS-QQ-P-35		
Alternate gold specification to supersede MIL-G-45204.		Unless otherwise specified:		A process designed to remove foreign metals from the surface of stainless and corrosion		No dimensional change	
Very compatible to MIL-G-45204 except that adhesion bake test	Type I	Purity	99.7% gold min.	resistant steels and to promote natural tendency of surface to	Type II		Medium temperature with sodium dichromate.
(If chosen) will be @ 570°F - 660°F for 30 minutes. A bend test may also be substituted.	Type II		99.0% gold min.	oxidize. Does not change the appearance of the base metal.	Type VI		Low temperature.
(Note: Sampling for destructive	Type III		99.9% gold min.	Process purifies surface and therefore, improves corrosion	1,400 11		24 hour high humidity test
testing will be higher than that of MII-G-45204).	Code A	Hardness	90 HK(25gr) max.	resistance.  Drawing or purchase order			required. Salt spray or copper sulfate tests can be used in lieu
	Code B		91-129 HK (25gr) N/A @AMF	documentation should specify stainless steel alloy. (Cancelled Feb. 2005)			of or in addition to high humidity test.
	Code C		130 - 200 HK (25gr) 200 min HK (25gr) N/A @AMF	Alexandria Metal Finishers currently offers Type II and Type VI nitric acid			Large parts may require copper sulfate testing as they may not fit
	Code D Class	Thickness	Thickness shall be specified as	passivation. For any other types, please contact for consultation.			in the salt spray or high humidity test chambers.
			minimum in micrometers such as 0.25, 0.50, 0.75, 1.00	PASSIVATE	SAE-AMS-2700		See Charling of
			Alexandria Metal Finishers performs Code A & Code C only. Other	Alternate spec. for		Selection of	
CO! D	MIL-DTL-45204		codes quoted upon request.	AMS-QQ-P-35. Alexandria Metal Finishers currently		"Types" is more relaxed than AMS-QQ-P-35	Differences from AMS-QQ-P-35:
GOLD	WIIL-D1L-452U4			offers Type 2 and Type 6 nitric acid passivation. For any other types,	Type 2	Type II	Cl. 1: Special Sampling for test
Alternate spec to supersede MIL-G-45204. Yellow gold to orange color depending on proprietary process used. Will	Type I	Unless otherwise specified:	99.7% gold min.	please contact for consultation.			Cl. 2: Testing is only 1 pc/lot. (Cl. 2 is "generally" defaulted to when class is not specified.)
range from matte to bright finish depending on the basis metal. Good corrosion resistance and	Type II		99.0% gold min.		Туре 6	Type VI	Cl. 3: Validation testing performed on a periodic basis
has high tarnish resistance. Provides a low contact	Type III		99.9% gold min.				Cl. 4: Parts originally for QQ-P-35
resistance and is a good conductor. Has excellent solderability. Unless otherwise	Class 00	0.00002" min.	Grade A 90 Knoop max.				
specified, an intermediate nickel plate is required on copper base	Class O	0.00003" min.	Grade B 91-129 Knoop				Co
alloys or copper plated surfaces prior to the gold plating.	Class 1	0.00005" min.	Grade C 130 - 200 Knoop				
	Class 2	0.00010" min.	Grade D above 200 Knoop				

	CAT		
RI	SAT		
3	14		RHODIU
)	21		Metallic and similar to s steel in color. Excellent corrosion resistance. Al
7	28		hard as chromium. Very abrasion resistance. Go solderability. Low conta resistance. Thicker coat
			very brittle. Has high re Inactive for new design. Provided for reference.
RI	SAT		
	6		
2	13		SILVER
9	20		White matte to very bri appearance. Good corro
3	27		resistance, depending o metal. Will tarnish easil Hardness varies from a Brinell to about 135 Br
			depending on process a plating conditions. Solde is excellent, but decrease
			age. Best electrical con Has excellent lubricity a characteristics for anti- uses on static seals, bu
			etc. This specification is for reference purposes has been canceled. Use
l I	SAT		consult ASTM-B-700 (see below).
	6		
2	13		SILVER
9	20		This specification covers requirements for electrodeposited coating
3	27		silver used for engineer purposes that may be n bright, or semibright an
_			Bi yearly analysis of pur
			deposited silver required  Tarnish resistance test required
			i equii eu
_			
	$\mathbb{Q}^{\mathbb{C}}$		
S			
			Our Class T tarnish resi treatment is accomplish
			rhodium or tin flash afte plating.
epen	_		SULFAM <i>A</i> NICKEL
prop etal	ximum erties		The plating conforming to
ill tei s. Ty	. Thick nd to pical		specification is intended t the formation of a seal be metallic surfaces.
ylind g car elect			PLATING HARDNESS. No exceed 150 Knoop hardne
y be	used		gm. load) after annealing. Knoop before annealing) in specification per notice 3.
	ize for 1y be		MIL-P-27418 is not curre included in our Nadcap so Nadcap is a requirement,
	eas. e with Class 1		2403 and AMS-QQ-N-290 used for Sulfamate Nickel,
	all not		TIN
nless	i		Color is gray-white in a condition. Has very high fused condition. Soft, bu
			ductile. Corrosion resist good. (Coated item sho 24 hour 5% salt spray requirement). Solderabi
navin			excellent. Tin is not goo temperature application (changes structure and
	00 or plated f		adhesion when exposed temperature below -40° directly on steel substra
			undercoating for steel
on. copp	er nickel		provided for reference ponly as it has been supe
hickr e Gr	ness is rade C		ASTM-B-545 (see below ASTM-B-339 (not availa Alexandria Metal Finisha
	ls, and netals.		
ation	ıs.		
nish tion	for		TIN
ener 5"	ally		ASTM requires purchas supply information: base metal, underplating, tes
			requirements, test met etc. In general, copper containing more than 5°
			shall have a copper und of at least 0.0001" or i undercoating of at least 0.000050", optional
with			co-deposited lead in the of 2-12% may be specif
test	;		
cop sed i	per n lieu		
re co	midity opper		
mav	y not fit umidity		TIRLITA
			TIN LEA
-QQ-	P-35:		a matte finish. Has exce solderability. 0.0002" o plate generally required
	test		copper base alloys. No undercoating required o substrates unless speci
pc/ fault	lot. ed to		The MIL-P-81728 speci has been superseded by
ified 9			AMS-P-81728 specifica
ic ba	asis		
1			ZINC
			Either a bright or dull fil acceptable. Bright zinc closely resembles bright
		00	chromium. However, br does not have the perm of surface appearance. coated steel will not rus
1	1.		when exposed by scrato because of the sacrifician protection of the zinc. O
			weathering, zinc turns t gray color. Zinc should deposited directly on the
			metal (Nickel is permiss undercoat if base metal corrosion resisting stee having a hardness above

	Nitric 4	120°-130°F 30 min.	45 - 55 none
	Nitric 5	As required	As required to pass test
RHODIUM	MIL-R-46085	THICKNESS	
Metallic and similar to stainless	Type I	I HICKINESS	Over Nickel, Silver, Gold, or
steel in color. Excellent corrosion resistance. Almost as hard as chromium. Very good abrasion resistance. Good	Type II		Platinum  Over other metals
solderability. Low contact resistance. Thicker coatings are very brittle. Has high reflectivity.	Class 1	0.000002" min.	(require Nickel Undercoat)  Used on Silver for tarnish
Inactive for new design. Provided for reference.	Class 2	0.00001" min.	resistance. Applications range from electronic to nose cones wherever wear, corrosion
	Class 3	0.00002" min.	resistance, solderability, and reflectivility are important
	Class 4	0.00010" min.	
	Class 5	0.00025" min.	
SILVER	QQ-S-365		
White matte to very bright in	<u> </u>	0.0005" min.	Increasing use in both decorative
appearance. Good corrosion resistance, depending on base metal. Will tarnish easily. Hardness varies from about 90		unless otherwise specified for most metals.	and engineering fields, including electrical and electronics fields.
Brinell to about 135 Brinell depending on process and plating conditions. Solderability	Type I	For Fe Alloys, unless otherwise specified, it shall be 0.0005" min.	Matte
is excellent, but decreases with age. Best electrical conductor. Has excellent lubricity and smear characteristics for anti-galling	Type II Type III	of silver with a total plating thickness of	Semi-Bright Bright
uses on static seals, bushings, etc. This specification is provided for reference purposes only as it	Grade A	O.001" min. (the balance to be	Chromate post treatment to improve tarnish resistance * *
has been canceled. Users may consult ASTM-B-700 (see below).	Grade B	Cu + Ni, but should not exceed	No Chromate treatment
		0.0005")	* *(Lot test required)
SILVER	ASTM-B-700		
This specification covers requirements for electrodeposited coatings of silver used for engineering	Type I Type II		99.9% min. 99.0% min.
purposes that may be matte, bright, or semibright and are not less than 98% silver purity.	Type III		98.0 % min.
Bi yearly analysis of purity of deposited silver required.	Grade A Grade B		Matte Bright (obtained by using
Tarnish resistance test not required	Grade C		Brighteners) Bright (obtained by polishing of Grade A coatings)
	Grade D		Semibright (obtained by the use of addition agents)
	Class N Class S		No supplementary tarnish resist (Chromate) treatment With supplementary tarnish
			resist (Chromate) treatment (not suitable for food service applications)
Our Class T tarnish resistant treatment is accomplished with a	Class T	As Specified (ref. Table 3.1)	Supplementary Non-Chromate Tarnish Resist.
rhodium or tin flash after silver plating.		(ren rable erry	
SULFAMATE NICKEL	MIL-P-27418		
The plating conforming to this specification is intended to facilitate	See Comments	Unless	The nickel plating shall have
the formation of a seal between two metallic surfaces.		otherwise specified: 0.0020" ±	columnar crystalline structure before annealing.
PLATING HARDNESS. Not to exceed 150 Knoop hardness (500 gm. load) after annealing. (or 300		O.0003" on all surfaces that can be touched	Unless otherwise specified, the bath shall be chloride free. Certification to this spec is
Knoop before annealing) inactive specification per notice 3. MIL-P-27418 is not currently		by 0.0625" Dia. Ball.	available only when specific waivers / clarifications / deviations are received from the
included in our Nadcap scope. If Nadcap is a requirement, AMS 2403 and AMS-QQ-N-290 may be			customer (i.e. hardness, thickness, bath, composition, etc.)
used for Sulfamate Nickel, specifically.	MIL-T-10727		
Color is gray-white in a plated			A
condition. Has very high luster in		As Specified on drawing. Thickness guide	Alexandria Metal Finishers provides both "Bright" and
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray			
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses	Type I	drawing. Thickness guide (not part of spec.) As follows:	provides both "Bright" and Matte finishes. If not specified,
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no	Type I	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.00025"	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline.  Flash for soldering
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is	Type I	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.00025"  0.0002 - 0.0004"	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified).  Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and	Type I	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.00025"  0.0002 - 0.0004"  0.0003 min	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified).  Please Note: This specification is provided for reference purposes only as it has been superseded by	Type I	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.00025"  0.0002 - 0.0004"	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified).  Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at	Type I	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.00025"  0.0002 - 0.0004"  0.0003 min	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified).  Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at		drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.00025"  0.0002 - 0.0004"  0.0003 min	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified).  Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-345 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).	Type II	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.00025"  0.0002 - 0.0004"  0.0003 min	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-345 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn	Type II ASTM-B-545	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002 - 0.0006"	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified).  Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-345 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least	Type II  ASTM-B-545  Class A  Class B	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002- 0.0006"	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline.  Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel	Type II  ASTM-B-545  Class A  Class B  Class C	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002 - 0.0006"  0.0002 - 0.0006"  0.0002 - 0.0006"	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.0001" or nickel undercoating of at least 0.00050", optional co-deposited lead in the range	Type II  ASTM-B-545  Class A  Class B  Class C  Class D  Class E	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002 - 0.0006"  0.0002 - 0.0006" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.0001" or nickel undercoating of at least 0.00050", optional co-deposited lead in the range	Type II  ASTM-B-545  Class A  Class B  Class C  Class D  Class E  Type Matte	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002 - 0.0006"  0.0002 - 0.0006" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.0001" or nickel undercoating of at least 0.00050", optional co-deposited lead in the range	Type II  ASTM-B-545  Class A  Class B  Class C  Class D  Class E  Type Matte  Type Bright  Type Flow	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002 - 0.0006"  0.0002 - 0.0006" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)  O.0004" min. for steel  O.0008" min. for steel
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.0001" or nickel undercoating of at least 0.00050", optional co-deposited lead in the range	Type II  ASTM-B-545  Class A  Class B  Class C  Class D  Class E  Type Matte  Type Bright  Type Flow	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002 - 0.0006"  0.0002 - 0.0006" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)  O.0004" min. for steel  O.0008" min. for steel
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.0001" or nickel undercoating of at least 0.00050", optional co-deposited lead in the range of 2-12% may be specified  Alexandria Metal Finishers offers a matte finish. Has excellent	Type II  ASTM-B-545  Class A  Class B  Class C  Class D  Class E  Type Matte  Type Bright  Type Flow  Brightened	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.00025" 0.0002 - 0.0004" 0.0003 min 0.0006"  0.0002" min. 0.00032" min. 0.00032" min. 0.00012" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)  O.0004" min. for steel  O.0008" min. for steel
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.0001" or nickel undercoating of at least 0.00050", optional co-deposited lead in the range of 2-12% may be specified  Alexandria Metal Finishers offers a matte finish. Has excellent solderability. 0.0002" copper plate generally required on copper blate generally required on steel	Type II  ASTM-B-545  Class A  Class B  Class C  Class D  Class E  Type Matte  Type Bright  Type Flow  Brightened	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.00025" 0.0002 - 0.0004" 0.0003 min  0.0006"  0.0002" min. 0.00032" min. 0.0006" min. 0.00012" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)  O.0004" min. for steel  O.0008" min. for steel
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.0001" or nickel undercoating of at least 0.00050", optional co-deposited lead in the range of 2-12% may be specified  TIN LEAD  Alexandria Metal Finishers offers a matte finish. Has excellent solderability. 0.0002" copper plate generally required on steel substrates unless specified.  The MIL-P-81728 specification	Type II  ASTM-B-545  Class A  Class B  Class C  Class D  Class E  Type Matte  Type Bright  Type Flow  Brightened	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002- 0.0006"  0.0002" min. 0.0002" min. 0.0002" min. 0.00012" min. 0.00012" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)  O.0004" min. for steel  O.0008" min. for steel
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.0001" or nickel undercoating of at least 0.00050", optional co-deposited lead in the range of 2-12% may be specified  Alexandria Metal Finishers offers a matte finish. Has excellent solderability. 0.0002" copper plate generally required on copper base alloys. No undercoating required on steel substrates unless specified.	Type II  ASTM-B-545  Class A Class B Class C Class D Class E Type Matte Type Bright Type Flow Brightened  AMS-P-81728  Standard composition 60/40 Sn-Pb Optional composition	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002- 0.0006"  0.0002" min. 0.0002" min. 0.0002" min. 0.00012" min. 0.00012" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)  O.0004" min. for steel  O.0008" min. for steel  Flow brightening not currently available at Alexandria Metal Finishers.
condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  TIN  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.00050", optional co-deposited lead in the range of 2-12% may be specified  TIN LEAD  Alexandria Metal Finishers offers a matte finish. Has excellent solderability. 0.0002" copper plate generally required on copper base alloys. No on steel substrates unless specified.  The MIL-P-81728 specification has been superseded by the	Type II  ASTM-B-545  Class A  Class B  Class C  Class D  Class E  Type Matte  Type Bright  Type Flow  Brightened  AMS-P-81728  Standard  composition  60/40 Sn-Pb  Optional	drawing. Thickness guide (not part of spec.) As follows:  0.0001- 0.0002- 0.0004"  0.0003 min  0.0002- 0.0006"  0.0002" min. 0.0002" min. 0.0002" min. 0.00012" min. 0.00012" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering  To prevent galling and seizing  Where corrosion resistance is important  To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)  O.0004" min. for steel  O.0008" min. for steel  Flow brightening not currently available at Alexandria Metal Finishers.
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condition. Has very high luster in fused condition. Soft, but is very ductile. Corrosion resistance is good. (Coated item should meet 24 hour 5% salt spray requirement). Solderability is excellent. Tin is not good for low temperature applications (changes structure and loses adhesion when exposed to temperature below -40°C). Plate directly on steel substrate (no undercoating for steel unless otherwise specified). Please Note: This specification is provided for reference purposes only as it has been superseded by ASTM-B-545 (see below) and ASTM-B-339 (not available at Alexandria Metal Finishers).  ASTM requires purchaser to supply information: base metal, underplating, test requirements, test methods, etc. In general, copper alloys containing more than 5% Zn shall have a copper undercoating of at least 0.0001" or nickel undercoating of at least 0.0001" or nickel undercoating of at least 0.000050", optional co-deposited lead in the range of 2-12% may be specified.  The MIL-P-81728 specification has been superseded by the AMS-P-81728 specification.  The MIL-P-81728 specification has been superseded by the AMS-P-81728 specification of surface appearance. Zinc coated steel will not rust even when exposed by scratches because of the sacrificial protection of the zinc. On weather of the zinc. On weather of the zinc specifical protection of the zinc. On weather of the zinc specifical protection of the zinc. On weather of the zinc specifical protection of the zinc. On weather of the zinc specifical protection of the zinc specifical protection of the zinc. On weather of the zinc specifical protection of the zinc. On weather of the zinc specifical protection of the zinc specifical protection of the zinc specifical protection of the zinc. On weather of the zinc specifical protection of the	Type II  ASTM-B-545  Class A Class B Class C Class D Class E Type Matte Type Bright Type Flow Brightened  AMS-P-81728  Standard composition 60/40 Sn-Pb Optional composition 90/10 Sn-Pb  ASTM-B-633  Fe/Zn25 SC4 (very severe) Fe/Zn12 SC3 (severe) Fe/Zn8 SC2 (moderate) Fe/Zn8 SC2 (moderate) Fe/Zn5 SC1 (mild) Type II	drawing. Thickness guide (not part of spec.) As follows:  0.0001-0.00025" 0.0002 - 0.0004" 0.0003 min  0.0002 - 0.0006"  0.0006"  0.0003" min. 0.00032" min. 0.00012" min. 0.0012" min. 0.00050" min. 0.00050" min. 0.00050" min. 0.00050" min.	provides both "Bright" and Matte finishes. If not specified, bright will be generally provided.  Electrodeposited. Use ASTM-B-545 as guideline. Flash for soldering To prevent galling and seizing  Where corrosion resistance is important To prevent formation of case hardening during nitriding.  Hot dipped (not currently available at Alexandria Metal Finishers)  O.0004" min. for steel O.0008" min. for steel  Tlow brightening not currently available at Alexandria Metal Finishers.  Flow brightening not currently available at Alexandria Metal Finishers.  The primary use of chromate finishes on zinc is to retard or prevent formation of white corrosion products on zinc surfaces.  The primary purpose of phosphate coating on zinc is to provide a paint base. We currently offer only chromate.  With supplementary chromate treatment.  With supplementary treatment  With supplementary treatment  With supplementary treatment  Corrosion resistance requirements:  Without supplementary colorless chromate treatment.  Corrosion resistance requirements:
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9418 Gunston Cove Rd, Lorton, Va 22079-2314 Phone: (703) 643-1636 | Fax: (703) 690-6731

Email: Sales@alexandriametalfinishers.com